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Effect of structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units

Reena Thakur[1,*]

[1]*Dept. of Medical Surgical Nursing, Index Nursing College, Indore, Madhya Pradesh, India*

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ABSTRACT

Introduction: Patients who are treated for cancer may experience difficult emotional responses, in addition to physical discomfort. Chemotherapy is associated with a number of side effects, such as nausea and vomiting, loss of appetite, mucositis, diarrhoea, infections, fatigue and emotional distress. Receiving chemotherapy treatment was perceived as difficult, and the experienced side effects negatively influenced patient's bodies and moods.

Materials and Methods: The research process for this study was guided by conceptual framework based on Kings Goal Attainment theory. A pre-experimental, One-group pre-test post-test design was undertaken for the study. The independent variable for the study was the structured interventional programme on post effect of chemotherapy and its management and the dependent variable was knowledge of patients admitted in oncology unit. The study was conducted in oncology unit of S.G.P.T. government cancer hospital, Indore. The samples for the study were the patients admitted in oncology unit and the sample size for the study were 300. Non- probability convenient sampling technique was utilized to select the sample from the population. Patients were assessed using the structured knowledge questionnaire for knowledge regarding post effect of parenteral chemotherapy and its management. After assessing knowledge Structured Interventional Programme was implemented. After intervention on 7^{th} day the post-test knowledge was assessed.

Result: The analysis revealed that in the pre-test, 195 (65.0%) patients had obtained inadequate knowledge score, 91 (30.3%) patients had obtained moderate knowledge score and 14 (4.7%) patients had obtained adequate knowledge score. In the post-test, majority 192 (64.0%) patients had obtained adequate knowledge score, 58 (19.3%) patients had obtained moderate knowledge score and 50 (16.7%) patients had obtained inadequate knowledge score. Findings revealed that the mean pre-test knowledge score was 14.74 ± 6.03, while the post-test knowledge score was 24.69 ± 7.12.The student paired 't' test value of the group was t = 33.063. The difference was found to be statistically significant ($p<0.05$), showing a significantly higher post-test knowledge in comparison to the pre-test knowledge score. It infers that the structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients were effective in improving the knowledge level of patients. Findings in present study also reveal that pre-test knowledge score statistically associated with the age, sex, marital status, educational status, occupation area, history of cancer in family of the patients, habit of the patients, number of chemotherapy cycle receiving, body system affected with cancer and the previous information about parenteral chemotherapy and its management.

Conclusion: The study concluded that Structured Interventional Programme was effective in improving the knowledge of patients on post effect of parenteral chemotherapy and its management. The study recommended the utilization of structured interventional programme by community health nurses, nurse researchers, nurse administrators, nurse educators and health care professionals to improve knowledge of cancer patients receiving chemotherapy.

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1. Introduction

Non-communicable diseases (NCDs) are now responsible for most global deaths, and malignancy forms the most leading factor for death and the single most significant obstacle to rising life expectancy in any 21st century country in the world. Nearly 9.6 million deaths occurred in 2018 due to malignancy. Worldwide, cancer is responsible for around 1 in 6 deaths (WHO 2018).[1]

AK Gandhi et al. (2016) evaluated India as having a quickly expanding malignant growth analyzed populace. The frequency of malignant growth is relied upon to reach up to 1.75 million cases by 2020, from 1.45 million cases in 2016. With the restriction of care administrations, focusing on preventable malignant growth cases is powerful to handle the expanding weight of disease.[2] Almost 70 percent of Indian diseases (40 percent related to tobacco, 20 percent related to contamination, and 10 percent related to others) are brought about by chance factors that might be modifiable and preventable. The analyst is breaking down these factors with a unique spotlight on the Indian situation. The discoveries that guide in the structure of more extensive application preventive methodologies.[3]

Intravenous (IV) intravenous administration is the most widely used method for the treatment of medicines for parenteral cancer. Intravenous administration has a more rapid onset of intervention than intramuscular management. Larger amounts of fluids compared with intramuscular or subcutaneous administration are handled with intravenous administration. Vesicant or irritant medications which can cause tissue damage may be administered intramuscularly or subcutaneously intravenously. Cancer medications for intravenous administration should be prepared for IV push injection in Syringes.[4]

2. Need of the Study

The United States populace is relied upon to ascend from 305 million of every 2010 to 365 million out of 2030. The full continuum of malignant growth conclusion p.a. Can ascend from 1.6 million out of 2030 to 2.3 million. 1/70th of diseases are analyzed among the more established ones by 2030. Since the frequency of malignant growth rises exponentially with more seasoned patients, it is anticipated that there will be an ascent in more established disease patients that will challenge expanding social insurance office and human services experts.[5]

The examiner in this way went over a huge number of studies that anticipated the propelling issues related with parenteral chemotherapy in an extensive survey of the writing. Human services experts need better control of the issue. Thusly, through clinical experience, the analyst felt the requirement for a methodical answer for get the issue at the grass root level instead of looking for helpful systems for the patients until they showed up with the complaints related with post-impact chemotherapy. The analyst in this manner intended to enable the patients to control the post-impact of chemotherapy toward the beginning of chemotherapy to decrease the occurrence and force of post-impacts of chemotherapy.[6]

3. Statement of the Problem

A study to evaluate the effectiveness of structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units of selected hospitals of Madhya Pradesh.

4. Objectives of the Study

1. To evaluate the knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units.
2. To compare the knowledge regarding post effect of parenteral chemotherapy and its management before and after the administration of structured interventional programme among patients admitted in oncology units.
3. To evaluate the effectiveness of structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units.
4. To find an association of the pre-test knowledge score of patients admitted in oncology units with their selected demographic variables.

4.1. Hypotheses

1. **H_1:** There will be significant difference between mean pre-test and post-test knowledge score regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units at $P< 0.05$ level.
2. **H_2 :** There will be a significant association of the pre-test knowledge score of patients admitted in oncology units with their selected demographic variables at $P< 0.05$ level.

4.2. Delimitations

1. The study is delimited to the patients who are admitted in oncology units and undergoing chemotherapy in selected hospital.
2. Assessment of knowledge only once before and after the administration of structured interventional programme.

* *Corresponding author*.
E-mail address: thakur.reena0@gmail.com (R. Thakur).

4.3. Study design

Pre-experimental, one-group pre-test post-test design.

4.4. Setting of the study

The study was conducted in oncology unit of S.G.P.T. government cancer hospital, Indore which is 65 bedded hospital with chemotherapy and radiation facility. Government cancer hospital was established in 1969. Total patients admitted in hospital for chemotherapy were 2554 patients.

4.5. Population

In present study, target population consisted of patients admitted in oncology units for receiving chemotherapy of Madhya Pradesh.

In present study accessible population consisted of patients admitted in oncology units for receiving chemotherapy at S.G.P.T. cancer hospital, Indore.

4.6. Sample & sample size

In this study, the sample comprised of total 300 patients who were admitted in oncology units for receiving chemotherapy.

4.7. Sampling technique

In this study Non- probability convenient sampling technique was used to select the sample from the population. During selection eligibility, feasibility, convenience and willingness of sample were considered by the researcher.

4.8. Variables

4.8.1. Independent variable

The structured interventional programme on Knowledge regarding post effect of chemotherapy and its management is the independent variable in this study.

4.8.2. Dependent variable

Knowledge of patients admitted in oncology unit is the dependent variable in the present study.

4.8.3. Extraneous variables

In the present study age, gender, marital status, educational status, occupation area, residence, history of cancer in family, history of recurrent infections, habits, number of chemotherapy cycle receiving, body system affected with cancer and previous information about parenteral chemotherapy post effect and its management.

4.9. Inclusion criteria

1. Both male and female cancer patients who are receiving parenteral chemotherapy.
2. Who are receiving parenteral chemotherapy weekly.
3. Who can read and write Hindi or English.
4. Who are willing to participate in study.
5. Who are available at the time of data collection.

4.10. Exclusion criteria

1. Patients who are critically ill.
2. Patients who are receiving more than 3 chemotherapy cycles.
3. Who are professionals from the medical and nursing field.

4.11. Development and description of tool

Data collection tools are the procedure and instruments used by the researcher to observe or measure the key variables in the research problem.

The study aimed to evaluate the effectiveness of structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units.

According to the objectives of the study, the following tools were developed to collect the data:

1. Demographic variables to assess the characteristics of patients.
2. Structured knowledge questionnaire to assess the knowledge of patients regarding post effects of chemotherapy and its management.

5. Description of tool

The tool consisted of two sections:

Section A: Demographic variables i.e. age, gender, marital status, educational status, occupation area, residence, history of cancer in family, history of recurrent infections, habits, number of chemotherapy cycle receiving, body system affected with cancer and Previous information about parenteral chemotherapy post effect and its management.

Section B: It consisted of 36 multiple choice questions about parenteral chemotherapy post effect and its management. Multiple choice questions were categorized in five parts:

Part I-A : Questions regarding knowledge on oncology.

Part-B: Questions regarding knowledge on parenteral chemotherapy.

Part-C: Questions regarding knowledge on observations before and during parenteral chemotherapy.

Part-D: Questions regarding knowledge on post effect of parenteral chemotherapy.

Part-E: Questions regarding knowledge on management of post effect of parenteral chemotherapy.

Scoring: (Total score - 36)

Inadequate- Less than 40% (0-14)

Moderate- 41% - 70% (15-25)

Adequate- 70% - 100% (26-36)

5.1. Reliability of the tool

The knowledge tool consisted of 36 items. Reliability of the knowledge tool was assessed using split half method. All the odd items totals were calculated and all the even items totals were calculated. Pearson coefficient of correlation was applied between these two totals. The r value obtained was 0.81. As we had used split half method, Spearman Brown correlation was applied. The reliability of the knowledge tool was obtained 0.89. Thus, our tool is highly reliable in reproducibility.

5.2. Pilot study

The investigator obtained formal permission from administrator of Index Medical Hospital and Research Centre. The purpose of this study and confidentiality was explained to patients. The investigator selected 30 patients as per the inclusion criteria for the pilot study. They were selected by convenient sampling technique. Group was assessed for the knowledge of post effects of parenteral chemotherapy and its management. The structured interventional programme was implemented and post-test was done on the same.

The analysis revealed that the overall pre-test mean was 9.77 and post-test mean was 22.73. The t value was found to be 12.79 which was statistically significant.

Table 1: Comparison of mean pre-test and post-test knowledge score

Group	No.	Knowledge Score [Mean ± SD]	't' value	P value
Pretest	30	9.77± 3.76	12.79, df=29	P<0.05
Posttest	30	22.73± 6.07		

Paired 't' test applied, P value < 0.05, Significant

The participants showed positive response towards the intervention and the pilot study helped the investigator to make modifications in the tool to precede it for the main study. In the knowledge questionnaire the number of items was reduced to 36 from 40 as the questions were difficult to answer for the participants.

Pilot study aided the investigator to check the feasibility of conducting the main study, to determine the method of statistical analysis and to assess the time required for data collection.

6. Result

Section I: Description of demographic variables of patients admitted in oncology units

Table 2 shows the distribution of patients according to demographic variables.

150 (50.0%) patients were in the age group 21-30 years, 19 (6.3%) patients were in the age group 31-40 years, 99 (33.0%) patients were in the age group 41-50 years and 32 (10.7%) patients were in the age group 51 years and above.

116 (38.7%) patients were males and 184 (61.3%) patients were females, showing a female preponderance in the study.

257 (85.7%) patients were married, 18 (6.0%) patients were unmarried and 25 (8.3%) patients were single. Majority of the patients were married.

81 (27.0%) patients had done their primary education, 151 (50.3%) patients had done their secondary education, 37 (12.3%) patients had done their higher secondary education, 23 (7.7%) patients were graduate and above and 8 (2.7%) patients had don their professional education.

37 (12.3%) patients were related to fibers, 124 (41.4%) patients were related to heat, 40 (13.3%) patients were related to radiation and 99 (33.0%) patients were related to none. Majority of the patients were related to heat.

152 (50.7%) patients were from rural areas and 148 (49.3%) patients were from urban areas. Majority of the patients were from rural areas.

111 (37.0%) patients were having a history of cancer in family and 189 (63.0%) patients did not had any history of cancer in family. Majority of the patients did not have any history of cancer in their family.

244 (81.3%) patients were having history of recurrent infections and 56 (18.7%) patients were having no history of recurrent infections. Majority of the patients were having history of recurrent infections.

54 (18.0%) patients had habit of smoking, 56 (18.7%) patients had habit of alcoholism, 39 (13.0%) patients had habit of tobacco chewing and 151 (50.3%) patients did not had any habit.

111 (37.0%) patients had received chemotherapy cycle I, 41 (13.7%) patients had received chemotherapy cycle II and 148 (49.3%) patients had received chemotherapy cycle III.

147 (49.0%) patients had cancer of the head and neck; 35 (11.7%) patients had cancer of cardiothoracic; 29 (9.7%) patients had cancer of GI system; 55 (18.3%) patients had cancer of genitourinary system and 34 (11.3%) patients had cancer of other body system. Majority of the patients had cancer of the head and neck.

130 (43.3%) patients had previous information about parenteral chemotherapy and its management; while 170 (56.7%) patients did not had any such information. Majority of the patients did not have any previous information about parental chemotherapy and its management.

Table 2: Distribution of patients according to demographic variables (N=300)

S. No.	Demographic Variable	Number	Percentage%
1.	**Age**		
	21-30 years	150	50.0
	31-40 years	19	6.3
	41-50 years	99	33.0
	51 years and above	32	10.7
2.	**Sex**		
	Male	116	38.7
	Female	184	61.3
	Other gender	0	0.0
3.	**Marital Status**		
	Married	257	85.7
	Unmarried	18	6.0
	Single	25	8.3
4.	**Educational Status**		
	Primary	81	27.0
	Secondary	151	50.3
	Higher secondary	37	12.3
	Graduate and above	23	7.7
	Professional education	8	2.7
5.	**Occupation area related to**		
	Fibers	37	12.3
	Heat	124	41.4
	Radiation	40	13.3
	None	99	33.0
6	**Residence**		
	Rural	152	50.7
	Urban	148	49.3
7.	**History of cancer in family**		
	Yes	111	37.0
	No	189	63.0
8.	**History of recurrent infections**		
	Yes	244	81.3
	No	56	18.7
9.	**Habit**		
	Smoking	54	18.0
	Alcoholism	56	18.7
	Tobacco chewing	39	13.0
	None	151	50.3
10.	**Number of chemotherapy cycle receiving**		
	I	111	37.0
	II	41	13.7
	III	148	49.3
11.	**Body system affected with cancer**		
	Head and neck	147	49.0
	Cardiothoracic	35	11.7
	GI system	29	9.7
	Genitourinary system	55	18.3
	Other, specify	34	11.3
12.	**Previous information about parenteral chemotherapy and its management**		
	Yes	130	43.3
	No	170	56.7
	Total	300	100.0

Section II: Effectiveness of structured interventional programme on knowledge regarding post effect of parenteral chemotherapy and its management among patients admitted in oncology units.

Table 3: Comparison of pretest and posttest knowledge score

S. No.	Knowledge Score	Pretest		Posttest	
		No.	%	No.	%
1.	Inadequate (0-14)	195	65.0	50	16.7
2.	Moderate (15-25)	91	30.3	58	19.3
3.	Adequate (26-36)	14	4.7	192	64.0
	Total	300	100.0	300	100.0

Table 3 shows the comparison of pretest and posttest knowledge score.

The knowledge questionnaire consisted of 36 multiple choice questions with only 1 option correct. For every correct answer 1 mark was given and for every wrong answer 0 mark was given. These marks were further graded as Inadequate knowledge (0-14 marks); Moderate Knowledge (15-25 marks) and Adequate Knowledge (26-36 marks).

In the pretest, 195 (65.0%) patients had obtained inadequate knowledge score, 91 (30.3%) patients had obtained moderate knowledge score and 14 (4.7%) patients had obtained adequate knowledge score.

Then an intervention in the form of structured interventional programme was given to these patients and again the same set of knowledge questionnaire was readministered and evaluated.

In the posttest, 50 (16.7%) patients had obtained inadequate knowledge score, 58 (19.3%) patients had obtained moderate knowledge score and 192 (64.0%) patients had obtained adequate knowledge score.

Thus, the structured interventional programme was very helpful in improving the knowledge score of the patients.

Table 4 shows the comparison of pretest and posttest knowledge score in relation to various domains.

Knowledge on oncology: The mean pretest knowledge score was 1.25 ± 0.74, while the posttest knowledge score was 2.11 ± 0.98. The difference was found to be statistically significant ($p<0.05$), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Knowledge on parenteral chemotherapy: The mean pretest knowledge score was 1.48 ± 0.81, while the posttest knowledge score was 2.18 ± 0.73. The difference was found to be statistically significant ($p<0.05$), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Knowledge on observations before and during parenteral chemotherapy: The mean pretest knowledge score was 1.66 ± 0.54, while the posttest knowledge score was 2.47 ± 0.73. The difference was found to be statistically significant ($p<0.05$), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Table 4: Comparison of mean pretest and posttest knowledge score according to domains

Domain	Questions	Pretest Score	Posttest Score	't' value	P value
Knowledge on oncology	1,2,3	1.25 ± 0.74	2.11 ± 0.98	14.695, df=299	P<0.05
Knowledge on parenteral chemotherapy	4,5,6	1.48 ± 0.81	2.18 ± 0.73	11.387, df=299	P<0.05
Knowledge on observations before and during parenteral chemotherapy	7,8,9	1.66 ± 0.54	2.47 ± 0.73	17.212, df=299	P<0.05
Knowledge on post effect of parenteral chemotherapy	10,11,12, 13,14,15, 16,17,18, 19,20,21	4.66 ± 2.31	7.89 ± 2.80	23.158, df=299	P<0.05
Knowledge on management of post effect of parenteral chemotherapy	22,23,24, 25,26,27, 28,29,30, 31,32,33, 34,35,36	5.52 ± 3.36	9.79 ± 3.25	25.592, df=299	P<0.05
Overall	Total 36 questions	14.74 ± 6.03	24.69 ± 7.12	33.063, df=299	P<0.05

Paired 't' test applied. P value < 0.05, Significant

Knowledge on post effect of parenteral chemotherapy: The mean pretest knowledge score was 4.66 ± 2.31, while the posttest knowledge score was 7.89 ± 2.80. The difference was found to be statistically significant (p<0.05), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Knowledge on management of post effect of parenteral chemotherapy: The mean pretest knowledge score was 5.52 ± 3.36, while the posttest knowledge score was 9.79 ± 3.25. The difference was found to be statistically significant (p<0.05), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Overall: The mean pretest knowledge score was 14.74 ± 6.03, while the posttest knowledge score was 24.69 ± 7.12. The difference was found to be statistically significant (p<0.05), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Thus, the intervention was helpful in improving the knowledge score of the patients.

Table 5: Comparison of mean pretest and posttest knowledge score

Group	No.	Knowledge Score [Mean ± SD]	't' value	P value
Pretest	300	14.74 ± 6.03	33.063, df=299	P<0.05
Posttest	300	24.69 ± 7.12		

Paired 't' test applied, P value < 0.05, Significant

The Table 5 shows the comparison of pretest and posttest knowledge score.

The mean pretest knowledge score was 14.74 ± 6.03, while the posttest knowledge score was 24.69 ± 7.12. The difference was found to be statistically significant (p<0.05), showing a significantly higher posttest knowledge in comparison to the pretest knowledge score.

Thus, the intervention was helpful in improving the knowledge score of the patients.

Section III: Association between the pre-test knowledge score of patients admitted in oncology units and their selected demographic variables

7. Conclusion

The study concluded that the Structured Interventional Programme has been successful in enhancing patient awareness on post effect of parenteral chemotherapy and its management. The study suggested that community health nurses, nurse practitioners, nurse administrators, nurse educators and health care providers use the structured interventional programme to increase awareness of patients receiving chemotherapy for cancer.

Table 6: Association between age with pretest score (N=300)

S. No.	Item	Pretest Score			c2 value	P value
		Inadequate	Moderate	Adequate		
1.	**Age**					
	21-30 years	117	31	2		
	31-40 years	0	16	3	68.843, df=6	P<0.05
	41-50 years	49	41	9		
	51 years and above	29	3	0		
2.	**Sex**					
	Male	91	23	2		
	Female	104	68	12	15.653, df=2	P<0.05
	Other gender	0	0	0		
3.	**Marital Status**					
	Married	176	71	10		
	Unmarried	0	15	3	36.724, df=4	P<0.05
	Single	19	5	1		
4.	**Educational Status**					
	Primary	43	31	7		
	Secondary	129	21	1		
	Higher secondary	16	20	1	124.019, df=8	P<0.05
	Graduate and above	7	16	0		
	Professional education	0	3	5		
5.	**Occupation area related to:**					
	Fibers	33	4	0		
	Heat	92	32	0	58.255, df=6	P<0.05
	Radiation	8	27	5		
	None	62	28	9		
7.	**History of cancer in family**					
	Yes	45	54	12	49.954, df=2	P<0.05
	No	150	37	2		
9.	**Habit**					
	Smoking	41	11	2		
	Alcoholism	47	9	0	24.125, df=6	P<0.05
	Tobacco chewing	18	20	1		
	None	89	51	11		
10.	**Number of chemotherapy cycle receiving**					
	I	59	45	7		
	II	22	14	5	23.318, df=4	P<0.05
	III	114	32	2		
11.	**Body system affected with cancer**					
	Head and neck	115	30	2		
	Cardiothoracic	5	24	6		
	GI system	25	3	1	63.552, df=8	P<0.05
	Genitourinary system	31	21	3		
	Other, specify	19	13	2		
12.	**Previous information about parenteral chemotherapy and its management**					
	Yes	60	56	14	43.126, df=2	P<0.05
	No	135	35	0		

8. Source of Funding

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9. Conflict of Interest

None.

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Author biography

Reena Thakur, Professor

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